

WHAT IS CLAIMED IS:

1. A golf club head comprising outer shell structure portions including a hosel portion, a face portion, a sole portion, a crown portion, and a side portion; and a joining portion where a crown member used in the crown portion is bonded to a member used in another outer shell structure portion, wherein:

the crown member has an equivalent rigidity not more than 0.8 times as high as that of a sole member used in the sole portion, the equivalent rigidity of a member used in each portion defined as a product of a thickness of the relevant member and an elastic modulus of the member in a direction in which a golf ball-striking surface of the face portion is oriented.

2. The golf club head according to claim 1, wherein the members joined together with said joining portion are formed of a different material from one member to another.

3. The golf club head according to claim 1 or 2, wherein the members joined together with said joining portion are each formed of a material selected from the group consisting of a metal, a fiber reinforced metal (FRM),

a metal matrix composite (MMC), a fiber reinforced plastic (FRP), and a ceramic matrix composite (CMC).

4. The golf club head according to any one of claims 1 to 3, wherein said crown member is formed of a fiber reinforced plastic (FRP).

5. A golf club head comprising outer shell structure portions including a hosel portion, a face portion, a sole portion, a crown portion, and a side portion; and a joining portion where a crown member used in the crown portion is bonded to a member used in another outer shell structure portion, wherein:

the crown member is composed of a plurality of laminated layers of a fiber reinforced material, of which layers two or more have a fiber orientation angle of 45 to 90 degrees with respect to a direction in which a golf ball-striking surface of the face portion is oriented, and the number of the layers having a fiber orientation angle of 45 to 90 degrees with respect to the direction in which the striking surface is oriented constitutes 50 percent or more of the total number of the laminated layers.

6. A golf club head comprising outer shell structure

portions including a hosel portion, a face portion, a sole portion, a crown portion, and a side portion; and a joining portion where a crown member used in the crown portion is bonded to a member used in another outer shell structure portion, wherein:

the crown member is composed of a plurality of laminated layers of a fiber reinforced material, of which layers two or more have a fiber orientation angle of 45 to 90 degrees with respect to a direction in which a golf ball-striking surface of the face portion is oriented, and mass of reinforcing fibers in the layers having a fiber orientation angle of 45 to 90 degrees with respect to a direction in which the striking surface is oriented constitutes 50 percent or more of mass of reinforcing fibers in all the laminated layers.

7. The golf club head according to claim 5 or 6, wherein said crown member has an equivalent rigidity not more than 0.8 times as high as that of a sole member used in said sole portion, the equivalent rigidity of a member used in each portion defined as a product of a thickness of the relevant member and an elastic modulus of the member in the direction in which the golf ball-striking surface of said face portion is oriented.

8. The golf club head according to any one of claims 5 to 7, wherein said crown member is formed of either a fiber reinforced metal (FRM) or a fiber reinforced plastic (FRP).

9. The golf club head according to any one of claims 5 to 8, wherein said two or more layers having a fiber orientation angle of 45 to 90 degrees with respect to a direction in which the striking surface is oriented constitute crossover layers in which reinforcing fibers are slanted from a direction in which the striking surface is oriented to a direction different from one layer to another.

10. A golf club head comprising outer shell structure portions including a hosel portion, a face portion, a sole portion, a crown portion, and a side portion; and a joining portion where a crown member used in the crown portion is bonded to a member used in another outer shell structure portion, wherein:

the crown member is composed of a plurality of laminated layers of a fiber reinforced material, of which layers two or more have a fiber orientation angle of 45 to 90 degrees with respect to a direction in which a golf

ball-striking surface of the face portion is oriented, and the crown member has an equivalent rigidity not more than 0.8 times as high as that of a sole member used in the sole portion, the equivalent rigidity of a member used in each portion defined as a product of a thickness of the relevant member and an elastic modulus of the member in the direction in which the golf ball-striking surface of the face portion is oriented.

11. A golf club having a golf club head, a golf club shaft, and a grip, wherein:

the golf club head comprises outer shell structure portions including a hosel portion, a face portion, a sole portion, a crown portion, and a side portion; and a joining portion where a crown member used in the crown portion is bonded to a member used in another outer shell structure portion; and

the crown member is composed of a plurality of laminated layers of a fiber reinforced material, of which layers two or more have a fiber orientation angle of 45 to 90 degrees with respect to a direction in which a golf ball-striking surface of the face portion is oriented, and the number of the layers having a fiber orientation angle of 45 to 90 degrees with respect to the direction in which

the striking surface is oriented constitutes 50 percent or more of the total number of the laminated layers.

12. A golf club having a golf club head, a golf club shaft, and a grip, wherein:

the golf club head comprises outer shell structure portions including a hosel portion, a face portion, a sole portion, a crown portion, and a side portion; and a joining portion where a crown member used in the crown portion is bonded to a member used in another outer shell structure portion; and

the crown member is composed of a plurality of laminated layers of a fiber reinforced material, of which layers two or more have a fiber orientation angle of 45 to 90 degrees with respect to a direction in which a golf ball-striking surface of the face portion is oriented, and the mass of reinforcing fibers in the layers having a fiber orientation angle of 45 to 90 degrees with respect to the direction in which the striking surface is oriented constitutes 50 percent or more of the mass of reinforcing fibers in all the laminated layers.